


STATE OF WASHINGTON  
**DEPARTMENT OF ECOLOGY**  
DANIEL J. EVANS      JOHN A. BIGGS  
GOVERNOR                      DIRECTOR

Publication No. 72-e39

April 6, 1972

WA-18-0020

MEMORANDUM

TO:            Jim Knudson  
FROM:        Ron Pine   
SUBJECT:    Crown Zellerbach, Port Angeles Outfall Study

The subject study was conducted on February 23, 1972 to evaluate the effectiveness of the Crown Zellerbach outfall and diffuser. Samples were collected during a 7.0 foot tide and a -0.6 foot tide. Station locations are shown on the attached figure and were sampled at surface, mid-depth and bottom. A composite sample and two grab samples were collected during the study period from the mill effluent prior to discharge. The composite was collected between 8 AM and 4 PM, and the grab samples were collected at 8 AM and 4 PM.

Results

Analysis results for the composite sample was:

PBI - 5700 mg/l                      TNVS - 157 mg/l  
Zinc - 10.0 ±0.2 mg/l              TVS - 280 mg/l  
Total Solids - 437 mg/l

Grab samples - zinc analysis only

8 AM - 10.8 ±0.02 mg/l  
4 PM - 10.5 ±0.02 mg/l

The total flow during the sample period was 3.75 M.G.D.

Summary results of samples collected over the diffuser in the Strait of Juan de Fuca were as follows:

	High Tide			Low Tide		
	Max.	Min.	Ave.	Max.	Min.	Ave.
Turbidity JTU	4.0	1.0	1.7	2.0	1.0	1.3
PBI mg/l	27	0	5	50	0	9
Zinc mg/l	0.05	<0.02	0.03	0.08	<0.02	0.04

Dissolved oxygen; pH and temperature were well within the Class AA standard and were not considered to be a factor in this study.

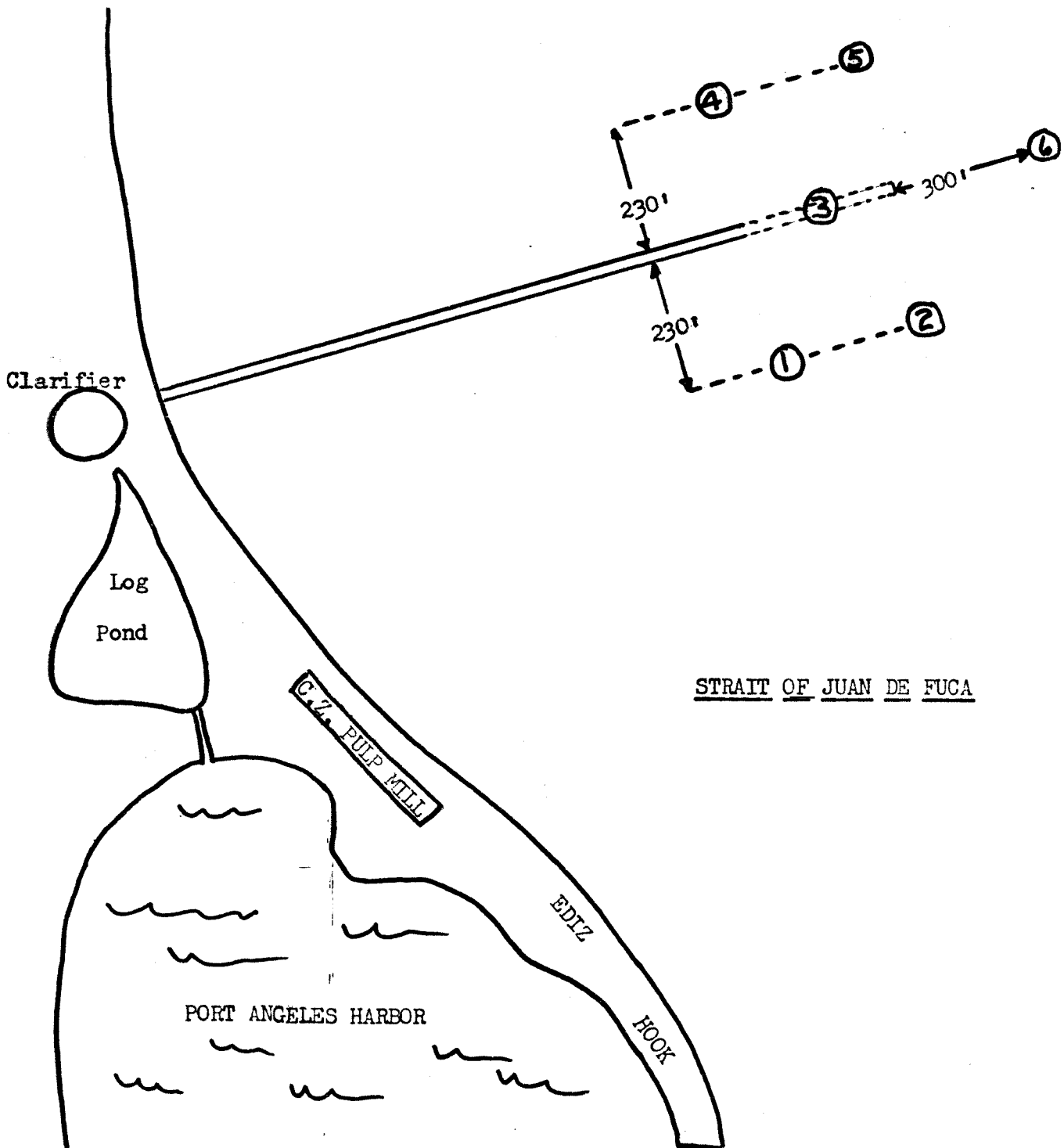
Page 2  
Memo to Jim Knudson  
April 6, 1972

Maximum depth in the sampling area at high tide was 40 feet and at low tide 34 feet.

#### Discussion

The results indicate that, during the survey period and except for PBI, the mill waste is adequately diffused and is within the prescribed dilution zone. Mid-depth PBI values, however, at stations 3, 4 and 5 exceed the suggested maximum of 10 mg/l.

REP:bj



STRAIT OF JUAN DE FUCA

STATE OF WASHINGTON  
**DEPARTMENT OF ECOLOGY**  
DANIEL J. EVANS      JOHN A. BIGGS  
GOVERNOR      DIRECTOR

April 19, 1972

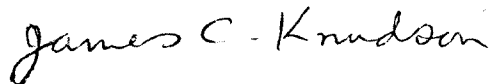
Mr. Don Nadig, Resident Manager  
Crown Zellerbach Corporation  
P. O. Box 271  
Port Angeles, Washington 98362

Dear Mr. Nadig:

I am enclosing a copy of our outfall study conducted on February 23, 1972, for your mill's effluent. The results show that your outfall meets Class AA standards as well as zinc standards of 0.10 mg/l at dilution boundaries, during critical periods of high and low tides.

If you have any questions about the conduct of this study, please contact Ron Pine (754-2826).

Sincerely,



James C. Knudson  
Central Operations Division

JCK:dn

cc:  Ron Pine

enclosure

## ANALYTICAL REPORT SHEET

Original to LABORATORY

Copies to:

Ron Pine

Merley McCall

To: Ron Pine

The following are the analytical results from survey conducted at:

Crown Zellerbach

03-02.21

Collected 2/22/72

LAB. NO.	STATION NO.	J.T.U.	ppm	ppm	Lab No.	Station No.	J.T.U.	ppm	ppm
		Turbidity	PBT $\pm 5$	Zinc $\pm .02$			Turbidity	PBT $\pm 5$	Zinc $\pm .02$
72-432	1B1	1	5	.05	52	751	2	5	4.02
33	2B1	2	0	.02	53	1B2	1	5	.03
34	3B1	2	5	.05	54	2B2	1	0	.03
35	4B1	2	5	.03	55	3B2	1	5	.05
36	5B1	1	0	.02	56	4B2	1	0	.05
37	6B1	1	5	4.02	57	5B2	1	9	.03
38	7B1	1	5	.02	58	6B2	1	9	4.02
39	1M1	1	0	.02	59	7B2	2	5	.03
40	2M1	1	0	4.02	60	1M2	2	55	4.02
41	3M1	2	27	.05	61	2M2	1	5	.02
42	4M1	2	0	.02	62	3M2	2	50	.03
43	5M1	(4)	9	4.02	63	4M2	1	18	.07
44	6M1	2	5	4.02	64	5M2	2	50	.08
45	7M1	1	5	.02	65	6M2	1	5	.02
46	1S1	2	5	.04	66	7M2	2	5	.03
47	2S1	2	9	4.02	67	1S2	1	0	.02
48	3S1	1	5	4.02	68	2S2	2	5	.04
49	4S1	1	5	.02	69	3S2	1	0	.02
50	5S1	2	5	4.02	70	4S2	1	0	.04
51	6S1	2	89	4.02	71	5S2	1	5	.03

Notes: 72-472

473

Sta No	Turb	PBT	Zinc
652	1	5	4.02
752	1	5	4.02

Summarized by

Date 3/13/72

## ANALYTICAL REPORT SHEET

To: Ron Pine

San Pine

Merley McCall

The following are the analytical results from survey conducted at:

Crown Zellerbach

03-02.23

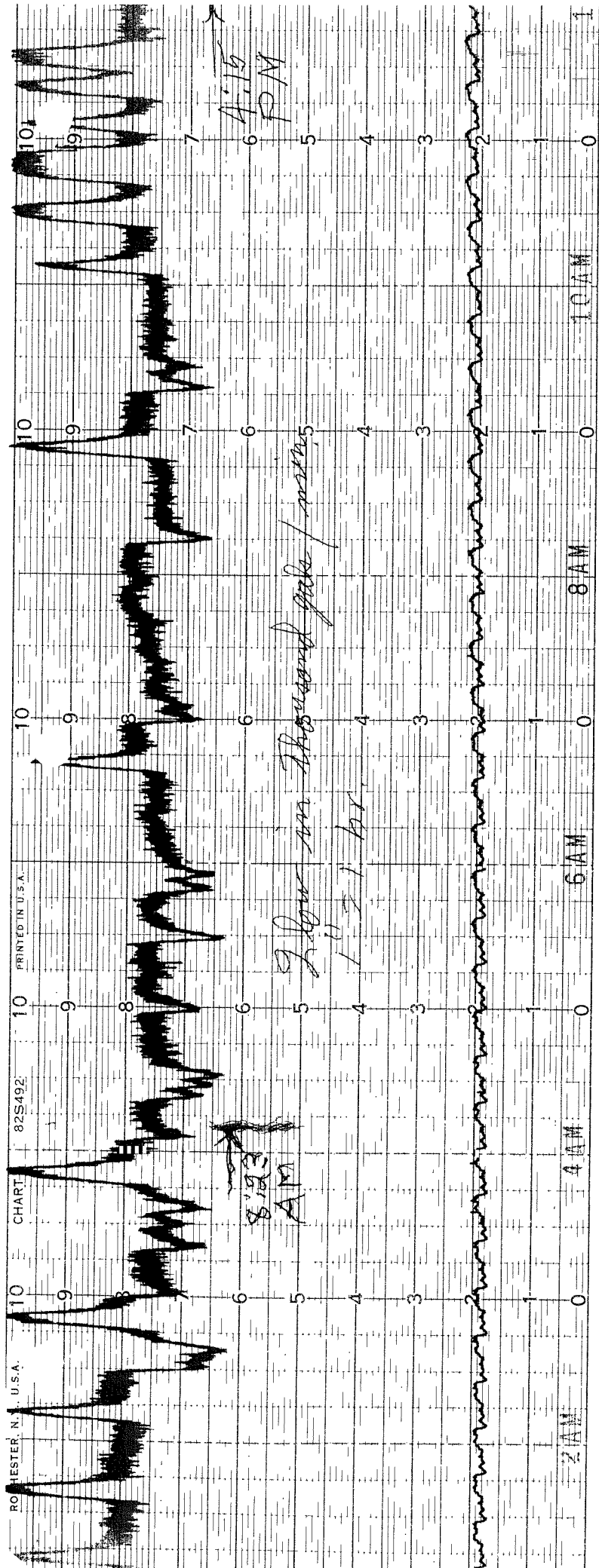
Collected 2/23/72

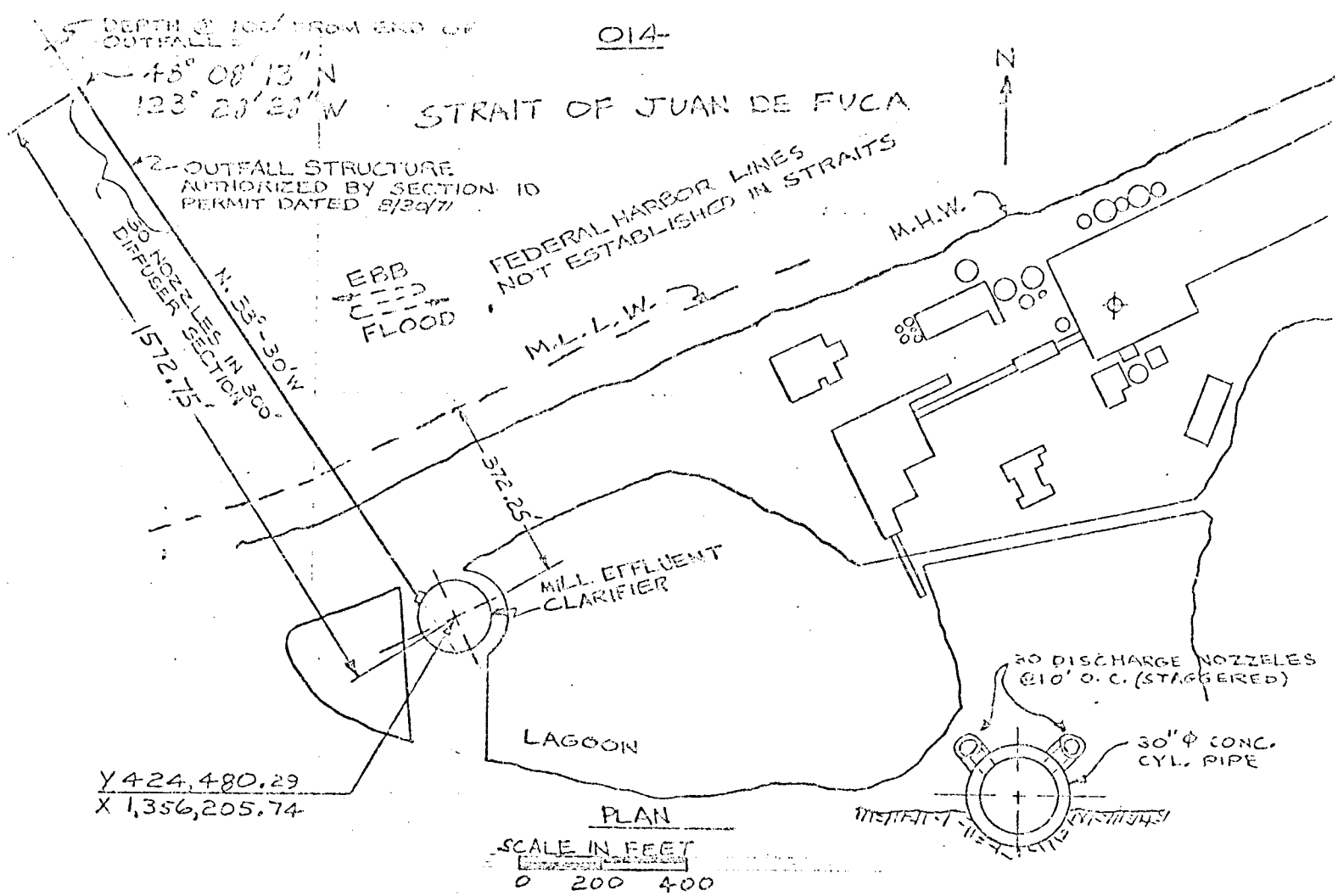
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**Notes:**

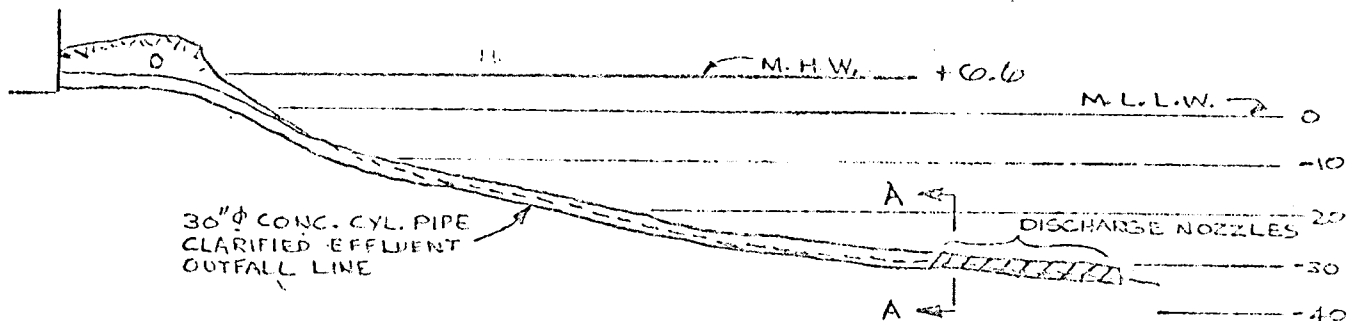
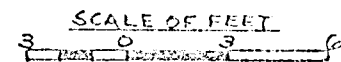
-- Summarized by

Date 3/13/71



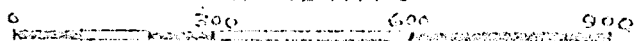


### SECTION A-A

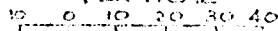


### SECTION

SCALE OF FEET  
HORIZONTAL



VERTICAL



EFFLUENT OUTFALL 014 IN STRAIT OF JUAN DE FUCA AT PORT ANGELES, CLALLAM COUNTY, WASHINGTON  
APPLICATION BY: CROWN ZELLERBACH  
DATE: JUNE 14, 1971

SHEET 13 OF 25

A-2860 REV. A 9-21-71





# REQUEST FOR ANALYSIS

Date FEB 18, 1972

REQUESTED BY RON PINE

RECEIVING WATER. STRAIT OF JUM DE  
FUGA

COLLECTED BY RON PINE

PROCESS WATER CROWN ZELLERBACH  
PULP MILL

DATE ~~WILL BE~~ (WILL BE) COLLECTED 2/23/72

OTHER .....

PRIORITY: REASONABLY SOON.....AS SOON AS POSSIBLE.....☒.....EMERGENCY.....

SAMPLES WILL ARRIVE: DATE 2/24/72 APPROXIMATE TIME 0800 CARRIER Suavey

ROUTE DATA SUMMARY TO: Low Pine CRO

ADDITIONAL INFORMATION (PROBLEM, BACKGROUND, INTERFERENCES, PATTERNS, ETC.)

~~SURVEY IS BEING DONE~~ COMPOSITE SAMPLE (6-8 HOURS)

FROM 'CROWN ZELLERBACH MILL IN PORT ANGELES.

REZEMING WATER STUDY IS BEING DONE CONCURRENTLY  
For Lab Use Only

**For Lab Use Only**

Type of Analyses Required	Number of Samples	Approx. Range	Preservative Type - Vol.	Laboratory Number	Analyst	Date	Notes
ZINC	1		HNO <sub>3</sub>				
PBI	1		ICED				
TS	1						
TSS	1						
TVSS	1						
TNVSS	1						
WHATMAN "40"	1		↓				
	TOTAL						

Fill out as completely as possible. Some Analyses (bacteriological, biological, BOD, etc.) and large numbers of samples should be scheduled ahead of time. Specific questions should be directed to the Analyst supervising the particular analysis desired. Lab. phone: 206-753-2362.

**MEMORANDUM**  
**Department of Ecology**  
**P. O. Box 829**  
**OLYMPIA, WASHINGTON**  
**98504**

Information  
For Action  
Permit  
Other

Check


TO: Ron Pine

DATE: February 15, 1972

FROM: Jim Knudson *JK*

SUBJECT: Arrangements for Port Angeles Survey  
February 22 - 23, 1972

Contacts and arrangements for your survey are as follows:

1. Crown Zellerbach, Port Townsend

Suggest you talk to Tom Aspitarte of Crown Zellerbach Central Research as he has just completed a zinc survey of their outfall and may have some experiences that may prove useful. Joyce Kendall, Utilities Supervisor at the Port Angeles mill (457-4474), indicates a tide schedule for 23 February 1972 as follows:

2:37 a.m.	Sub-high tide	6+'
7:59	High tide	6+'
16:18	Low tide	-6'

(You should have the schedule I forwarded from Joyce at the time of our January survey.)

He will also arrange to have the composite sample started at 8 a.m. or any other time you begin the survey and also offered to take grab samples for instantaneous high values. A boat launching facility is available near Fibreboard's old mill according to Joyce.

2. ITT Rayonier, Port Angeles

Arrangements for a composite sample have been made with Mr. Frank Hawks, Supt. for Environmental Protection (457-3391) with pickup tentatively set for Tuesday afternoon 22 February 1972.

If I can help in any other way, please let me know.

JCK:dn